



Review

Head impalement – An unusual form of suicide

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ARTICLE INFO

Article history:

Received 14 July 2011

Accepted 28 December 2011

Available online 14 January 2012

Keywords:

Suicide

Penetrating injury

Blunt craniocerebral trauma

Self-inflicted injury

ABSTRACT

An 80-year-old man with pancreatic adenocarcinoma and depression was found with his head impaled on a bolt that had been screwed into a hole that had been drilled in the floor of a shed at his home address. Once the bolt was in place the decedent had winched a heavy weight above it, using a pulley that he had attached to the metal roof frame, and the front fork of a bicycle frame. The latter had been bolted to a nearby work bench as a winching device. After the weight had been positioned, he had placed his head over the bolt and cut the rope with a kitchen knife. The impact of the falling weight had forced his head onto the bolt with penetration of the cranial cavity. The complexity of the design of the suicide apparatus is exceedingly rare in our experience and the time taken to set up the device indicated that there had been a considerable degree of premeditation. The finding of complex apparatus at a death scene may provide useful information in ascertaining the manner of death and also in providing some indication as to the decedent's level of determination to succeed.

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1. Introduction

Suicide, or the deliberate act of killing oneself, accounts for a substantial number of unnatural deaths each year in many countries. Methods that are used in cases of suicide vary among populations and communities, as well as over time, but in Australia and in a number of Western countries hanging, carbon monoxide poisoning or firearms are most commonly used.¹ Methods are usually chosen because of their ready availability and relative simplicity.^{2,3} In contrast, an unusual case of suicide is reported where the decedent had taken some time to set up a complex apparatus designed to impact his head with a weight, thereby impaling it onto a metal bolt screwed into a floor.

2. Case report

An 80-year-old man was found lying on the floor of a shed at his home address surrounded by a pool of blood, with a metal bolt protruding from the left side of his head. Examination of the scene revealed a heavy metal weight and a cut length of nylon rope with

a hook at one end near the body (Fig. 1). Above the body was a pulley attached to the metal roof frame and immediately beneath where his head had been was a cylindrical hole that had been drilled into the concrete that was 10 mm wide and 50 mm deep. Reconstruction of events indicated that the decedent had apparently drilled a hole into the concrete floor and inserted the metal bolt. The bolt measured 107 mm in length, with a hexagonal head measuring 15 mm in diameter, and a circular shaft measuring 10 mm in diameter (Fig. 2). The victim had also cut down the front fork of a bicycle frame and bolted it to a nearby work bench to use as a winching device to enable the metal weight to be hoisted above his head through the pulley attached to the roof. One end of the rope was still wound through the cylindrical head of the bicycle frame. Once the weight had been positioned, he had placed his head on the bolt and cut the rope with a kitchen knife. The impact of the falling weight had forced his head onto the bolt with fracture of the skull and penetration of the cranial cavity. The deceased had a history of pancreatic adenocarcinoma and depression. A suicide note was located inside the house.

At autopsy the major findings were of a 25 × 20 mm defect in the left temple (Fig. 3) overlying a comminuted fracture of the left parietal bone in keeping with a penetrating injury from the bolt. On the right side of the head there were irregular abrasions and lacerations overlying a 60 × 60 mm depressed and comminuted fracture of the right parietal bone in keeping with blunt trauma from impact with the metal weight. The penetrating injury

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Fig. 1. The death scene showing blood staining around a hole in the floor that housed the bolt, with the weight nearby (arrow) and cut rope hanging from the pulley attached to the roof. Rope can also be seen attached to the fork of a bicycle that was attached to a work bench on the right of the figure.



Fig. 2. The metal bolt that had been screwed into a shed floor prior to a weight being dropped onto the decedent's head forcing it into the cranial cavity.

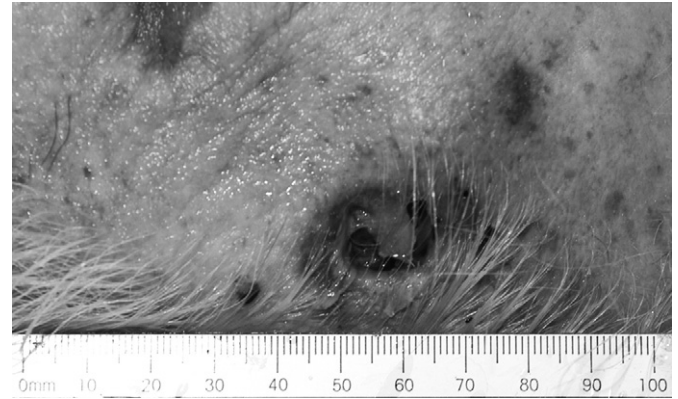


Fig. 3. An oval defect in the left temporal region where the bolt had entered the head. Underlying radiating fractures were associated with bilateral periorbital haematomas.

extended from the inferior aspect of the left frontal lobe across the midline to the right frontal lobe with minor involvement of the left basal ganglia. Toxicologic evaluation of blood and tissues was negative. Pancreatic adenocarcinoma with jaundice was confirmed. Death was due to a combination of blunt and penetrating cranio-cerebral trauma.

3. Discussion

Factors that influence preferred methods of suicide include knowledge of the lethal effect of a substance or activity, and the availability of the particular material or device that is being utilised.³ Differences in methods may also be influenced by the age range, sex distribution and ethnic composition of a community.^{1,4,5} Suicide in South Australia most often involves hanging, carbon monoxide poisoning, drug overdose, and gunshot wounds. Multiple methods of self-destruction may also be used, but are generally less common.⁶

Lethal penetrating head injuries that are not due to firearms are most often found in vehicle crashes in civilian practice. Rarely nail guns or captive-bolt guns may be used in either suicides or homicides, and on occasion, cross bows have inflicted fatal injuries.^{7–11} Use of an immobilised object to penetrate the head in the manner described in this report is much less common. In infancy penetration of the fontanelle has been reported in cases of infanticide associated with the insertion of needles into the brain, or rarely in accidents.¹²

Suicide may be precipitated by alcohol intoxication or drug effect, with the disinhibiting effect of alcohol possibly being involved in hanging suicides in younger victims.¹³ On these occasions methods that are used are those closest to hand as there may have been little planning involved. Some cases of single vehicle single driver crashes may represent examples of this type of opportunistic use of a particular situation.

In the reported case toxicology screening was negative for alcohol and common drugs, and the elaborate and time consuming nature of setting up the devices used to terminate the decedent's life indicated that there had been a considerable degree of premeditation. The complexity of the design of the suicide apparatus is in our experience exceedingly rare although occasionally individuals have taken time to manufacture "firearms" specifically to kill themselves.¹⁴ While the finding of elaborate devices that have resulted in self-inflicted death may indicate suicide, the possibility of an auto-erotic accident should also be considered in cases of asphyxial deaths from hanging or suffocation¹⁵ (although this obviously did not apply in the current case). Speculating on the psychological reasons for the use of elaborate devices in suicide is beyond the

scope of this paper; however, the finding of a complex apparatus at a death scene may be useful in determining the manner of death.

Conflict of interest

The authors have no financial interest in this paper, or conflict of interest.

Funding

None declared.

Ethical approval

South Australian State Coroner.

Acknowledgements

We thank the South Australian State Coroner, Mr. Mark Johns, for permission to report selected details of this case.

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